

## ABSTRACT OF THE DISCLOSURE

### METHOD AND APPARATUS FOR TUNABLE MAGNETIC FORCE INTERACTION IN A MAGNETIC FORCE MICROSCOPE

[0029] The present invention is a method and apparatus for tunable magnetic force interaction for a magnetic force microscope. In one embodiment, the magnetic moment of a probe tip is oscillated using a time-varying heat source. The magnetic field interaction between the probe tip and a sample is thus modulated, substantially separating the magnetic force components of a measurement from non-magnetic components at any time and position over the sample. This simplifies the measurement process and also provides measurements of sample properties that are more purely magnetic than measurements achieved by existing magnetic force microscopy techniques.